Ordering number: EN 1357D

Monolithic Digital IC

LB1640N

Forward/Reverse Motor Driver with Brake

Overview

The LB1640N is a motor driver IC with a forward/reverse control feature. This IC is optimal for driving motors used in front-loading VCRs and auto-reverse cassette decks.

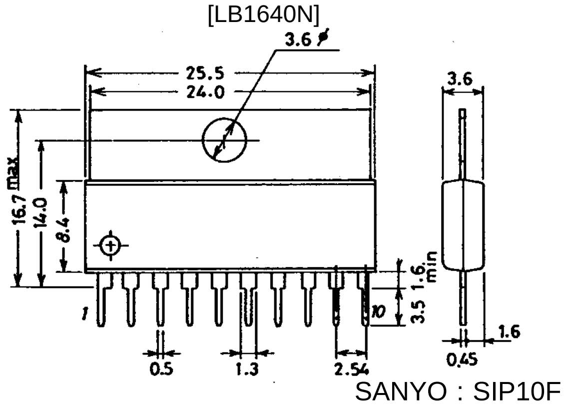
Features

- Brake function on chip
- Dash current absorption diode on chip
- Broad operating voltage range (4 to 18 V)
- Direct drive made possible by TTL

Package Dimensions

unit : mm

3046B-SIP10F



Specifications

Absolute Maximum Ratings at Ta = 25 °C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC}		20	V
Input voltage	V_{IN}		–0.3 to V_{CC}	V
Output current	$I_O$max	t = 5 ms, with cycle time of 5 sec. or more	1.6	A
Allowable power dissipation	Pd max	No heat sink	2.5	W
		When using heat sink (100 x 100 x 1.5 mm^3)	7.0	W
Operating temperature	Topr		–25 to +75	°C
Storage temperature	Tstg		–55 to +125	°C

Allowable Operating Ranges at Ta = 25 °C

Parameter	Symbol	Ratings	Unit
Supply voltage	V_{CC}	4 to 18	V
High-level input voltage	V_{IH}	3 to V_{CC}	V
Low-level input voltage	V_{IL}	–0.3 to +0.4	V
Output current	I_O	–500 to +500	mA
Forward ↔ Reverse inhibit time	T_{OFF}	10 or longer	µs

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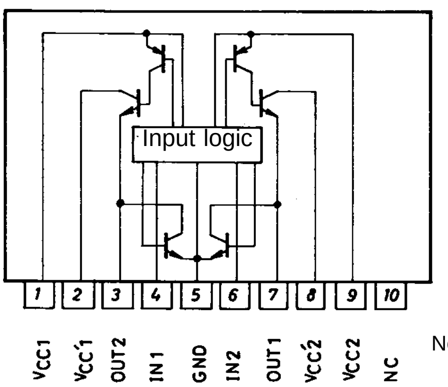
Electrical Characteristics at Ta = 25 °C, V_{CC} = V_{CC}' = 12 V

Parameter	Symbol	Output	min	typ	max	Unit
Supply Current	I_{CC}	V_I1 or V_I2 = 3 V , R_L = ∞ , V_{CC} = V_{CC}' = 16 V			40	mA
High-level output voltage	$V_{OH}1$	V_I1 or V_I2 = 3 V , I_O = –300 mA	10.8			V
	$V_{OH}2$	V_I1 or V_I2 = 3 V , I_O = –500 mA	10.7			V
Low-level output voltage	$V_{OL}1$	V_I1 or V_I2 = 3 V , I_O = 300 mA			0.5	V
	$V_{OL}2$	V_I1 or V_I2 = 3 V , I_O = 500 mA			0.65	V
Interoutput voltage	V_O1-V_O2	V_I1 or V_I2 = 3 V , I_O = ±300 mA	10.3			V
Input voltage	V_I	I_I = 500 µA	3			V
Output leakage current	$I_{O\ Leak}$	V_{CC} = V_{CC}' = 20 V $V_{IN}1$ = $V_{IN}2$ = 0 V, V_O = 20 V or 0 V			±100	µA

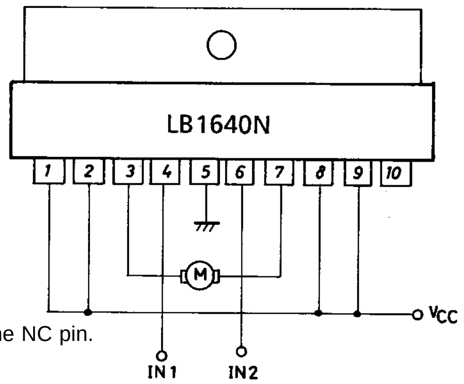
Control Modes

Input		Output		Remarks
1	2	1	2	
0	0	—	—	Open
1	0	1	0	Forward
0	1	0	1	Reverse
1	1	0	0	Brake

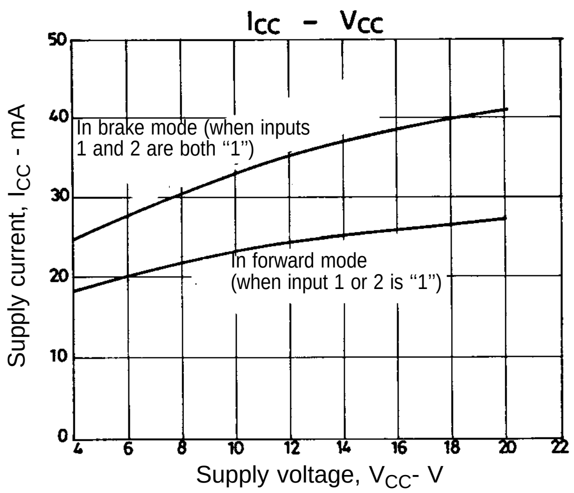
Equivalent Circuit Block Diagram

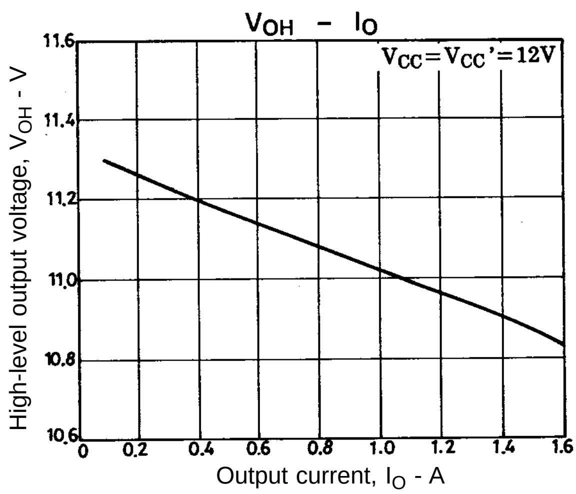


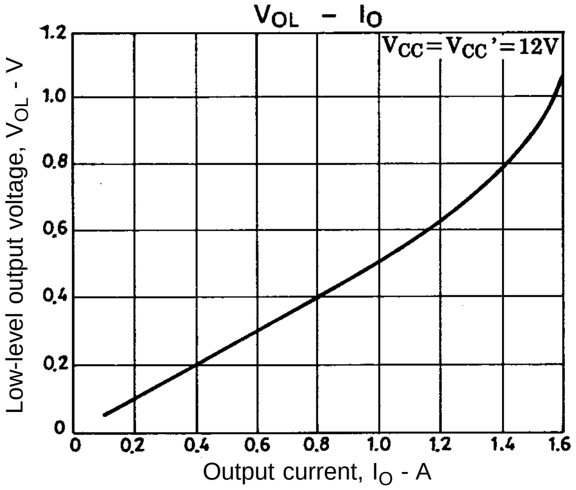
Sample Application Circuit

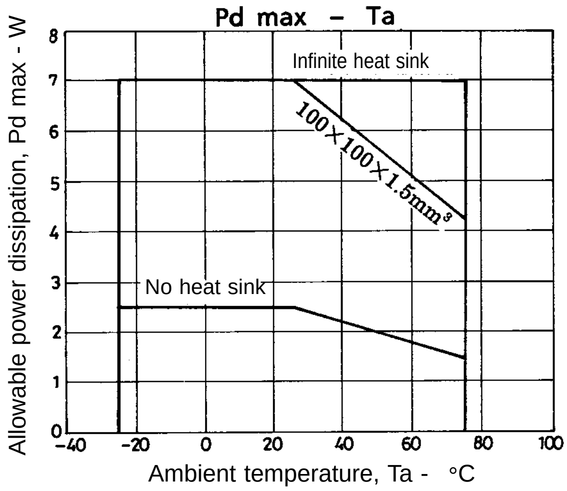


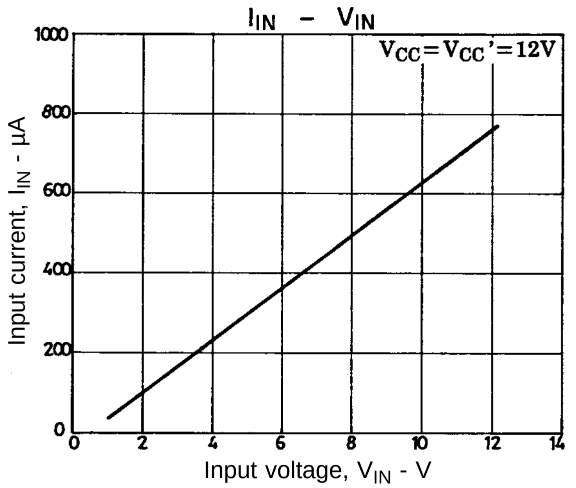
Note: Do not use the NC pin.






VOL - IO
VCC=VCC'=12V
Low-level output voltage, VOL - V
Output current, IO - A


Pd max - Ta
Infinite heat sink
100×100×1.5mm3
No heat sink
Allowable power dissipation, Pd max - W
Ambient temperature, Ta - °C


IIN - VIN
VCC=VCC'=12V
Input current, IIN - µA
Input voltage, VIN - V